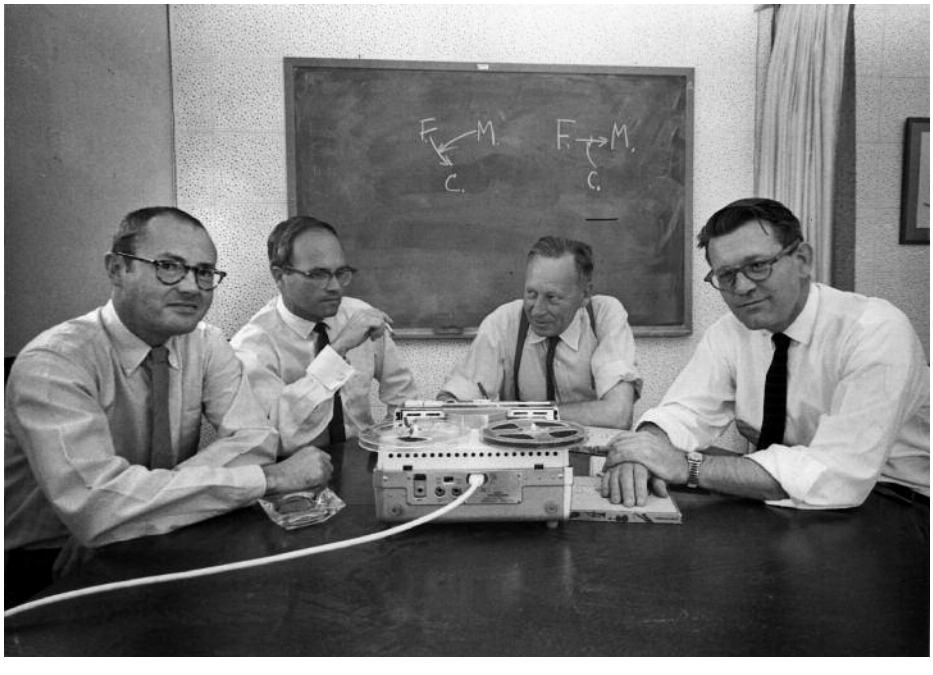
Left to right: William Fry, John Weakland, Gregory Bateson, and Jay Haley of the Palo Alto Group, with a tape recorder used to document sessions with patients, ca. 1955. A diagram on the blackboard models communicative patterns in a three-member family of F[ather], M[other], and C[hild]. Courtesy Don D. Jackson Archive, University of Louisiana at Monroe.



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The Family as Machine: Film, Infrastructure, and Cybernetic Kinship in Suburban America

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In the 1950s an interdisciplinary team of researchers associated with anthropologist Gregory Bateson embarked on a collective effort to dethrone psychoanalysis with film and magnetic tape. More surprising than their mission has been its resounding success. By the end of the decade Bateson and his colleagues around the San Francisco Bay Area had established the rudiments of a psychotherapeutic approach that eschewed the search for traumas buried in the individual unconscious in favor of investigations into mental illness as the result of interpsychic distortions among individuals interacting in small groups. The group of particular interest to the Palo Alto Group (as Bateson and his colleagues came to be known) was also among the most sacred of postwar social institutions in the United States: the nuclear family. While American popular culture and social science were celebrating the tight-knit nuclear family as a foundation of national strength and moral rectitude, the Palo Alto Group was developing a portrait of the family as a kind of post-Fordist factory for the production and management of psychic well-being. Their claims rested on the intricate analysis of films, photographs, audio recordings, and transcripts said to reveal hierarchies of communicative codes (e.g., denotative, metalinguistic, metacommunicative) structuring everyday interactions such as mealtimes, the bathing of babies, and even play among animals. This notion of mental illness springing from communicative errors gave rise to a new school of mental health therapy that recast psychotherapists as technicians of the family circuit and ushered in an ensemble of cameras, audio recorders, architectures, games, and techniques available to therapists for managing communications in the family. Thus, the family as cybernetic machine was born.

The cybernetic family is perhaps the most durable artifact spun off by cybernetics. Whereas cybernetics gradually lost credibility in fields such as engineering, linguistics, and sociology in the course of the 1960s, the account of the therapist-as-technician offered by the Palo Alto Group has thrived in the mental health profession under

the methodological banners of family therapy and brief therapy.[1] Its conceptual tenets have provided inspiration to far-flung intellectual movements, including the antipsychiatry movement, neoliberal programs for the deinstitutionalization of mental patients, and cultural critics' diagnoses of schizophrenics' scrambled communications as symptomatic of the logical contradictions of late capitalism. Iterations of these techniques can likely be found at the reader's nearest mental health clinic. Indeed, anyone who has gone through ten or twelve sessions of cognitive behavioral therapy may count herself an extended member of the cybernetic family.[2]

This article examines the production of the cybernetic family (and the productivity of the cybernetic family) through media practices implemented by Bateson and his associates in psychiatry, anthropology, and the visual arts. While the cybernetic origins of the Palo Alto Group are no secret, the origins and consequences of this link—indeed, the very meaning of *cybernetic* in this context—remain obscure.[3] Often the conflation of Bateson's research with the fabulous techno-imaginaries of cybernetics and computing has produced misleading portraits of the work of the Palo Alto Group as an offshoot of high-tech digital worlds or as a commentary on the psychic costs of living in information societies. Such accounts overshadow a far more interesting and composite media genealogy of film, tape recorders, photography, paper transcriptions, laboratory architectures, and suburban infrastructures that produced the cybernetic systems devised by Bateson and his associates.[4] Along with the overshadowing of these multimedial origins, the work of Bateson's collaborators—such as painter and experimental filmmaker Weldon Kees—have also disappeared from histories of the Palo Alto Group.[5] The multiplicity of media and personnel present at the group's origins imbued its work with the reach and potentiality later actualized in its appropriation by visual artists of the 1960s and 1970s and by the gurus of Silicon Valley cyberculture.[6]

Working with previously unconsidered archival materials (largely unpublished due to their status as medical records), this article reintroduces the extended network of human beings, instruments, and media responsible for what I call the "Palo Alto Apparatus" and posits that the remarkable endurance of the cybernetic family stems from its robust construction as a multimedia machine. For in contrast to most cybernetic speculation of the 1950s and 1960s, the cybernetic family was not *modeled* on analogies to media and technology; rather, it was itself a functioning media technology composed of film strips, feedback loops, photographs, studios, audio recordings, mirrors, mothers, fathers, children, and therapists. Within this ensemble, two technical artifacts in particular—namely, ethnographically deployed film and the postwar suburbs—furnished key technical affordances

for producing the cybernetic family. The visually rich, serially structured frames of film furnished therapists with data series suitable for cybernetic and information analysis, while postwar American suburbs arranged families into semiautonomous libidinal systems suitable for technical description and modulation. In offering an initial analysis of the production of the cybernetic family, this article models the theoretical proposition that media history offers invaluable tools for understanding the production of a wide range of cultural forms that, though remote from "mass media" as such, are irremediably shaped by the intervention of media-technical practices, instruments, and inscriptions.[7]

The Rise of "Psybernetics"

As the cast-off technologies of World War II trickled down to civilian life in the 1940s and 1950s, state-sponsored care for the mentally ill emerged as a popular arena for their repurposed application. MIT mathematician Norbert Wiener blazed what would soon became a well-worn path from schools of engineering to departments of psychology.[8] In a 1948 article for *Scientific American* that introduced cybernetics to the American public, he defined the new field as combining "under one heading the study of what in a human context is sometimes described as thinking and in engineering is known as control and communication," adding that "[t]he technique of the psychoanalyst . . . is perfectly consistent with the cybernetic point of view."[9] Engineers and human scientists jostled for priority in realizing this consistency. The founder of information theory, engineer Claude Shannon, devoted his private hours to writing a monograph dedicated to the study of the informational laws that governed the human mind, titled "Brains, Minds, Machines."[10] Computer designer and game theorist John von Neumann felt these applications to be so promising that he spent the final weeks of his life dictating the chapters of *The Computer and the Brain* from his deathbed.[11] These and other works inspired scholars working in the mental sciences proper—for instance, American psychologist George Miller and French psychoanalyst Jacques Lacan—to apply cybernetics, game theory, and information theory to the construction of machinic theories of mind.[12]

This gradual application of cybernetics to psychic management—which I suggest terming *psybernetics*—reflected the interrelated production of mental illness and media technologies in midcentury America. As World War II came to an end, media technologies and armies of mentally damaged veterans flooded civilian life.[13] From the early to the late 1940s the number of mental patients in the care of the Veterans Administration doubled, with 60 percent of the 74,000 patients in its care in 1946 suffering from neuropsychiatric disorders.[14] Moreover, social scientists' conception of fascism as psychic

pathology (and of democracy as resilient mental equanimity) motivated a new focus on "mental health" as a suitable matter for state investment. The National Mental Health Act of 1946 and the founding of the National Institute of Mental Health in 1949 responded to this emerging battlefront in the American psyche. Even so, the crisis of the mentally ill seemed to grow inexorably. By the mid-1950s the number of mental health patients in the United States had peaked at half a million, with mental patients filling 50 percent of all hospital beds nationwide, as much as 10 percent of some states' entire annual budgets going toward mental health care, and the American Psychiatric Association predicting billions of additional dollars would be needed to confront the growing mental health crisis.[15]

This postwar demand for mental health care mapped onto—and was in a sense given form by—a tempest of progressive and reactionary political forces allied in their skepticism about state-run mental health care. A spate of journalistic exposés of asylums in the late 1940s—such as the devastating multipage layout "Bedlam 1946" that appeared in *LIFE* in May 1946 and Albert Deutsch's 1947 book *The Shame of the States*—revealed abominable conditions prevailing in many asylums, which often warehoused hundreds of patients soused in their own filth for years and years on end.[16] In the decade that followed, a flurry of studies on mental hospitals, such as Erving Goffman's *Asylums* (composed under the aegis of the National Institute of Mental Health), attributed symptoms of mental illnesses to the deleterious effects of institutionalization itself.[17] This politically progressive opprobrium directed at institutionalized mental health care found a corollary on the political right, where groups such as the John Birch Society and the Daughters of the American Revolution attributed the growth in mental hospitals to communist plots implemented by psychiatrists of Jewish and European extraction (allegations investigated in 1948 by Congress's House Un-American Activities Committee).[18] These two movements set the stage for a politically broad critique of institutionalized mental health care.

Left- and right-wing criticisms of psychiatry from this period comported with a wider mutation underway in twentieth-century psychiatry. Throughout the nineteenth and the first half of the twentieth centuries, the dominant settings of interwar mental health care in the West, such as psychoanalytic sofas and urban asylums, had relied on a model of psychic containment aimed at producing an autonomous and rational self. That ebbing epoch of medical (as well as industrial and political) discipline had depended on constraint, expertise, and the confessional reform of individual bodies.[19] Psybernetics, however, devised workable alternatives to institutional enclosure based on new etiologies and an interpsychic conception of self.

The leading architect for the psybernetic redistribution of mental illness was Bateson and his extended network of colleagues. Rejecting enclosure (i.e., the asylum) and abandoning the goal of producing a self-contained autonomous psyche, they identified families, communities, domestic spaces, and nonverbal communication as components of a decentralized matrix that produced—and was capable of resolving—mental illness. In doing so, they proposed the substitution of the old system of experts and asylums with a new system of technicians and suburban homes.

The Palo Alto Apparatus

An outline of the Palo Alto approach to psychotherapy appeared in the 1956 essay "Toward a Theory of Schizophrenia," coauthored by Bateson and his Palo Alto Veterans Administration Hospital colleagues Don D. Jackson, Jay Haley, and John Weakland.[20] Later characterized by Haley as "a preliminary report which summarized the common agreement of the research team on the broad outlines of a communication theory of the origin and nature of schizophrenia," the paper argued that mental illness springs from communicative contradictions in the family, which the authors termed "double binds."[21] As an example of the double bind, the authors cited the case of a schizophrenic patient whose mother verbally demanded affection from her son but physically withdrew when he embraced her. Bateson and his team claimed schizophrenic symptoms—such as a confusion between literal and metaphorical levels of communication—were not inherently pathological but, on the contrary, provided a tactical (and rational) resolution of double binds. Where gesture and speech conflicted, or affective and discursive levels of communication clashed, the schizophrenic produced a mash-up of interpretive frames that reconciled competing levels of meaning. From this analytical perspective, the best method for curing schizophrenia was to engineer a change in the familial patterns of communication responsible for its genesis.

The double-bind hypothesis depended on two strategic apparatuses of cybernetic communication. First, the hypothesis rested upon on a proposed isomorphism between families and media-technical systems (such as telegraphy), which was produced by a technodiscursive apparatus comprising media technologies and key conceptual arenas, such as the Macy Conferences on Cybernetics, that translated media-technical knowledge into the social sciences. On the basis of this exchange Jackson could claim, in the knowledge that game theory and computing machinery furnished an implicit framework for rendering such a claim intelligible, that "the family is a rule-governed system" characterized by a "patterning of behaviors [that] can be abstracted as a governing principle of family life."[22] What made this exchange an apparatus (*dispositif*)—that is, a heterogeneous

system responding to an urgent political need—was psybernetics' inscription in the postwar health crisis, as well as cybernetics' emergence through the patronage of technocratic institutions, including the Rockefeller Foundation and the Josiah Macy Jr. Foundation (sponsors of the Palo Alto Group from 1952 to 1954 and 1955 to 1962 respectively).[23] These and other private foundations embraced cybernetics as a purportedly neutral scientific tool for resolving social and political problems.[24] The notion of the family as a technoscientific system gained traction within this network of private foundations supporting market-friendly technological solutions to social problems. Domestic discontent became a problem of engineering improved communication, not in wires but in people. This combination of discourse, machinery, and strategy constituted the first apparatus of cybernetic communication.

Second, the double-bind hypothesis itself modeled the construction of a new technodiscursive apparatus of communication for capturing and defining mental illness in terms of "characteristic sequential patterns" within the family.[25] From the mid-1950s through the early 1960s, members of the Palo Alto Group devised an array of media-technical systems to capture and analyze these patterns. Their most notable system was the structured interview, a cultural-technical assemblage of cameras, microphones, architectural design, scripts, and games to aid therapists in "scanning for patterns" in families.[26] Most often this system was used in interviews of families with a member labeled "schizophrenic." In its simplest form the structured interview consisted of standardized questions posed by a family therapist. These questions governed (or "structured") topics of discussion, the likely order of family members' responses, and the presence or priority of particular family members (or the therapist) during discussion. The paradigmatic structured interview distributed the family in a horseshoe shape around a circular table, family members facing inward, with the therapist and movie camera positioned at the opening end of the horseshoe. Although occasionally performed at home, structured interviews typically took place in a purpose-built room that included a table, chairs, a fireplace, and a one-way mirror that concealed the camera and observing therapists.[27]

The structured interview redistributed

Top: John Weakland (far right) conducting a structured interview at home with members of a family, including the son (second from right), labeled schizophrenic, 1957. Frame enlargement. Faces have been concealed to protect the identities of the subjects. Courtesy Don D. Jackson Archive, University of Louisiana at Monroe.

Bottom: John Weakland (back to camera) conducting a structured interview with members of a family in a purpose-built interview room, with a one-way mirror to conceal the camera and observing therapists, at the Mental Research Institute, Palo Alto, 1959. Frame enlargement. What appears to be a microphone hangs overhead and what appears to be a fireplace is installed behind the family. Faces have been concealed to protect the identities of the subjects. Courtesy Don D. Jackson Archive, University of Louisiana at Monroe.

the site of diagnosis away from the supposedly traumatized, unconscious interior of an individual patient to a series of binding patterns in family interactions that would be disclosed by recording media.[28] The interview unfolded as a series of questions and tasks presented by the therapist to the family. Responding to these demands required collective, coordinated activities executed in a fixed period of time. One iteration of the structured interview asked family members, individually and in isolation, what they believed the main problem was in the family. Afterward they would be brought together in a room, informed of unnamed discrepancies among their individual accounts, and challenged to reach a collective conclusion about the true nature of the problem. As they negotiated among themselves, a therapist observed and the camera documented from behind the one-way mirror in hopes of revealing double-binding processes in action. "[T]his task," a member of the Palo Alto Group explained, "is an adaptation of the game-theoretical model of the Prisoners' Dilemma where, as is known, direct communication is made impossible, a decision involving all concerned has to be reached and the decision is dependent upon the amount of trust each partner is prepared to invest in the others."[29] In these and others tasks it was "not so much the content of their final decision which has been found to be revealing . . . but whether or not a decision is reached within the time limits, and the manner in which it was accomplished."[30] Therapists recorded, transcribed, and minutely analyzed these transactions for evidence of interpsychic double binding.

The media setup organized both family performance and scientific observation in these experiments. Therapists called patients' attention to the recording apparatus to achieve a range of goals, including policing quarrels, compelling the faithful performance of tasks, and identifying the therapist as a coparticipant rather than an arbiter (the therapists, no less than family members, were subordinate to the impartial record of the film).[31] This last point encouraged family members to focus on immanent interactions among one another rather than turn to the therapist as an external authority. This regulation of participants' performance redounded on the therapists themselves, who found in celluloid and magnetic tape an objective record that short-circuited the temptation to psychoanalytic interpretation. "The ultimate verification of typical family patterns," group member Haley explained, "would seem to be possible

Photograph taken from behind the one-way mirror of an interview room at the Mental Research Institute, Palo Alto. Captioned as "Schizophrenia patient Ida Friedberg (end of table) and parents in a Palo Alto therapy session. Ida, 35, recently was released from a mental hospital. Her parents give high praise to the new treatment." From Milton Silverman and Margaret Silverman, "Psychiatry inside the Family Circle," *Saturday Evening Post*, 28 July 1962.

only if the family is placed in some experimental situation where the responses can be recorded by some other means than the quick eye of an investigator."[32] In this way family members and therapists became part of a single ensemble regulated by the strategic intervention of a media apparatus.

The coordinating power of the apparatus reached its apex in an experimental setup for tracking patterns of family cooperation and competition, devised in partnership with Alexander Bavelas of MIT's Group Networks Laboratory. A simple conceit organized the setup. Psychotherapists instructed members of three-person families to play a simple game, wherein family members had three rounds of two minutes each to win points for forming "coalitions" with one another. These pairs were exclusive—only two people could be in a coalition at a time—and to win the game, a family member had to strategically shift back and forth between coalitions with different family members. For example, if mother formed coalitions only with son and vice versa (i.e., mother and son never engaging father), then no one would win the game because mother and son would have the same number of points and father none. This design of the game imposed a formal pattern on cooperation and competition within families and, its designers hoped, would allow for scientific comparisons of characteristic patterns of coalitions between pathological and nonpathological families.

The game complicated matters by not allowing speaking during three of the four rounds and only brief speech in the fourth round. Instead, play and alliance building took place by means of an experimental apparatus that structured interactions around a series of binary selections (not unlike the vacuum tubes of a computer that reduced complex equations to series of steps governed by a circuit that was either on or off). This apparatus seated three-member families at a table divided into three cubby-like partitions. The walls of the cubby obstructed family members' lines of sight, preventing visual signaling among one other. Instead, communication took place by means of switches. Each partition had two buttons, individually labeled to designate the kin member in the adjacent partition (mother, father, daughter, or son). When family members from adjacent cubbies simultaneously pressed the buttons designating each other, they formed a coalition and were awarded a point. Each cubby had its own mechanical counter that tracked points won.

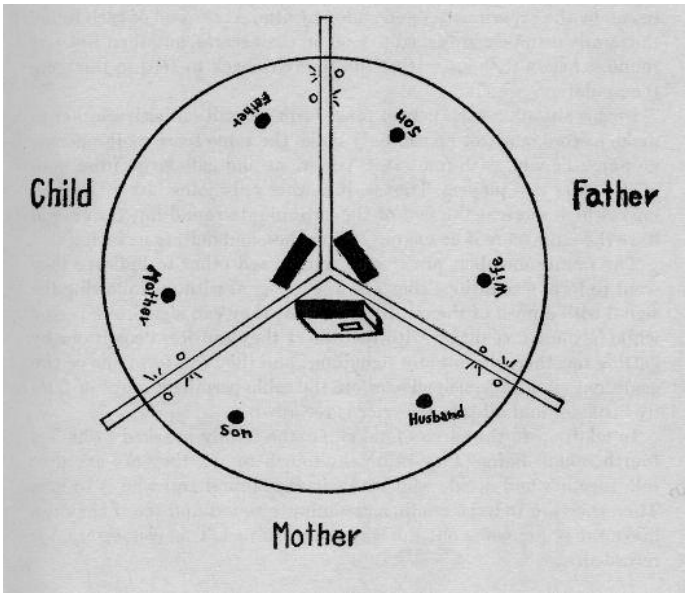


Diagram of an apparatus designed to standardize and quantify patterns of interaction in family members in order to compare the patterns of "normal" families with those of families with a child labeled schizophrenic, ca. 1962. The names on the outside (Child/Mother/Father) designate the assigned seating place of said family member. Partitions divide the members, while buttons on the surface of the tabletop labeled *son*, *husband*, *wife*, etc., could be pressed to ally the seated person with an adjacent person. Additional buttons embedded in the partition and connected to a bulb permit signaling to the adjacent person to request an alliance. A square mechanical counter toward the center of each partition tracks points scored through successful alliance. From Jay Haley, "Family Experiments: A New Type of Experimentation," *Family Processes* 1 (1962).

Two additional buttons allowed members to activate lights in the adjacent cubby, signaling an invitation to form a coalition. An "event recorder" in the adjacent "control room" kept a master record of all interactions for later analysis and comparison across families. Apparatuses such as these facilitated a formalist analysis of family interactions. More important, they performatively reconstituted the family into a rule-bound system governed by elementary operations of relay and exchange.

These programming techniques stripped away conversational semantics to reveal elementary patterns of interaction suitable for formal description and mathematical analysis. In contrast to psychoanalysis, which would have read repetitions, gestures, stutters, and cross talk in terms of the depths and obfuscations of the psyche, the Palo Alto Group treated these elements as depthless codes governing the binding of a communicative network. Psychoanalytic depth and repression thus gave way to cybernetic surface and pattern, which could be empirically captured in a material surface of celluloid and magnetic tape. Indeed, staff members sometimes divided up the different family members' spoken lines like roles and acted them out with one another, because if mental illnesses resided in patterns of interaction, then even "normal" subjects—so the logic went—might slip into psychically aberrant roles.[33]

These methodologies had a peculiarly centrifugal effect on mental illness. No longer inscribed in the flesh, mental disturbances became ambulatory—traveling from body to body, without a center, the property of ongoing interactions rather than internal states. This shift of locale corresponded to modifications in documentation and treatment. Recording media gave illness a durable existence in material traces outside the body; illness no longer resided in tissues of grey matter but rather in informatic patterns and traces. By means of recording, these traces could be sped up, slowed down, cut into pieces, redistributed across distances long and short, and circulated for analysis through professional journals. In time, these results could be returned to the patient, on occasion even directly; for instance, through an encounter with words and images played back to him or her. But more often the therapists themselves synthesized these elements and applied their lessons to the family, thereby completing the circuit of communications, with therapists themselves becoming the final segment of the feedback loop that reconstituted the family as a cybernetic system.

Gestural Spacing

The Palo Alto Apparatus emerged from a series of filmic and photographic investigations on nonverbal communication that Bateson conducted from 1949 to 1955 in collaboration with Kees and

psychiatrist Jurgen Ruesch.[34] Bateson had flirted with mental health research since the 1930s, when the Committee for Research in Dementia Praecox provided him and his then-wife Margaret Mead with funding to study causes of the supposedly low incidence of schizophrenia among Balinese tribes.[35] When their marriage broke up in the late 1940s, Bateson decamped for California, where he secured an appointment working with Ruesch, a non-Freudian analyst of Swiss extraction, at the Langley Porter Clinic in San Francisco. Bateson brought to this work two decisive interests. His burgeoning interest in communication theory, based on his participation in iterations of the Macy Conferences on Cybernetics (as they later came to be known) since 1946, came to organize much of their work. Bateson's interest complemented Ruesch's own growing interest in communicative theories of mental health. In addition, the "culture and personality" school of anthropology, with which Bateson became associated through Mead, had developed an account of personality as the result of values and practices inculcated by the family in child rearing. This latter perspective would inform how Bateson and his colleagues defined communicative processes in the family.

Ruesch and Bateson's coauthored 1951 monograph *Communication: The Social Matrix of Psychiatry* established the rudiments of a cybernetic approach founded on the premise that "almost all phenomena included under the traditional heading of psychopathology are disturbances of communication."[36] The presumption that mental illness developed in communication demanded a turn away from the expressions of the solitary disturbed individual in favor of an analysis of interactions between mentally ill patients and the people around them, including their families and therapists. Ruesch and Bateson turned to Kees to develop modes of documentation capable of empirically documenting these interactions. An accomplished painter and poet, Kees had succeeded Clement Greenberg as the art critic for *The Nation* and was an emerging figure in the postwar experimental film scene taking root in the Bay Area. Like Bateson and Ruesch, he was a transplant to the area, having come to San Francisco to escape the East Coast, where he felt stifled by the nascent New York School of Painting, with which he was identified.

Kees infused his colleagues' films and writings with an aesthetic acuity and, rather than seeing the job as just a means to a paycheck, appeared to have a genuine investment in the prospect of a reformed approach to psychotherapy. His wife spent time at Langley Porter Clinic as a patient, and Kees suffered from his own bouts with depression, culminating in his presumed suicide from the Golden Gate Bridge, in 1955. His poem "The Clinic," dedicated to Bateson but apparently written before he joined the Langley Porter team, offers a grim portrait of the scenes of electroconvulsive therapy of the period:

When the doctors turn the current on.
The ceiling fries. Waves shimmer from the floor
Where hell spreads thin between the bars.
And then a switch snaps off and it is over
For another day. Close up. Go home.
Calcium chloride, a milligram
Or so, needled into the brain, close to
The infundibulum. Sometimes we sleep for weeks.[37]

The brooding horror of electrical and chemical intervention evoked in "The Clinic" hints at the unease Kees, Bateson, and Ruesch shared for mainstream psychiatry of the period. This acutely felt and intimate investment in the problems of the psychologically unwell seemed to drive Kees's efforts as he redirected the experimental modes of representations honed in poetry, criticism, filmmaking, and painting toward a reimagination of the psyche itself, as inscribed in aesthetic flows available for capture and modification through cinematic reels and photographic rolls.[38]

One of their major works from this period, the educational film *Communication and Interaction in Three Families* (1952), outlines the trio's cybernetic approach to the study of the family. A narrator describes the film as an effort to document what the narrator terms "small repetitive patterns . . . whose cumulative effect contributes to character formation."[39] The film, ethnographic in character, documented nearly imperceptible patterns of gesture and interaction in the family which, following the culture-and-personality school's thinking, they credited with forming individual character. Other activities filmed during this period included schizophrenic patients reading *Finnegans Wake*, "mute mongoloids" interacting in group settings, suburban mothers spending time at home with mentally ill children, and seeing-eye dogs undergoing training.[40] Bateson attributed the double-bind thesis to films shot in this period at the San Francisco Zoo, where he claimed to have found nonverbal cues that allowed the animals to distinguish between fighting and playing.[41]

Bateson, Ruesch, and Kees purposed to undertake a cybernetic analysis of these interactions as revealed in microdetail by celluloid. According to Ruesch and Kees,

> few are trained to look steadily and searchingly at the visual world and really to see what passes before the eyes. The nature of action is inherently transitory. . . . [However, t]he highly consequential act of putting a "frame" around a person or group or an object concentrates and emphasizes, and there are not many

***The Nature of Play: Part 1, River Otters*, dir. Gregory Bateson and Weldon Kees, 1954. Frame enlargement of river otters stimulated to play by the directors. From *Bateson EPPI Films*, in the Bateson Collection at the Don D. Jackson Archive, University of Louisiana at Monroe, accessed spring 2015. Reproduced with the permission of the Bateson Idea Group.**

> films that deal honestly and directly with real events—films that permit us to look at human beings as they actually are.[42]

The notion that minutiae of movement revealed by film could illuminate imperceptible psychic realities had appeared widely in the film theory of the first half of the twentieth century. In the 1930s Walter Benjamin had developed a memorable theory of the optical unconscious that subverted the Freudian emphasis on language over movement and physiology.[43] However, the concept of cybernetic patterns introduced a powerful framework for rendering this imperceptible reality legible for therapeutic ends. For Bateson and his colleagues, uncovering such patterns was the first step in reforming a prevailing psychiatric gaze dominated by Freudian theories of trauma and depth. "We made a film in '49 at Langley-Porter Clinic," Bateson later recalled, "of the fact that the minor patterns of interchange in a family are the major sources of mental illness. And nobody in '49 could look at that film; the [medical] professionals just could not see it."[44] At stake for Bateson were two competing analytics: psychoanalytic hermeneutics that sought out traces of traumatic repression in disguised forms (malapropisms, rebus-like dream figures, and bungled actions) versus cybernetic behaviorism that treated discrete communicative traces, captured by recording media, as elements in stochastic systems of recursive communication.

Their 1951 *Hand-Mouth Coordination: Excerpts from the Feeding Routine of a One-Year-Old Boy* (a preliminary study to *Three Families*) documents the emerging features of a cybernetic observation rooted in celluloid, including gestural patterning, recursive communications, and a blurring of the distinction between system and observer.[45] It also displays the enduring residues of psychoanalytic themes in the emerging therapeutic modes. Shot by Bateson and Kees in the suburbs of San Francisco with two portable Bell and Howell 16 mm cameras, the silent film documents in excruciating detail interactions among a mother and her four children, with particular attention paid to the feeding of the toddler in its high chair.[46] Kees's careful editing turns this ordinary domestic scene into a cybernetic system of gestures and gazes traveling among mother, children, and cameramen.[47] Feeding time at the kitchen table becomes an almost obscene display of orifices as relays: hands summon what mouths swallow, while gazes travel from mother to toddler to brother and back in a constant feedback loop. Drawn into this circuit are the cameramen and their cameras, whose apertures—objects of fascination for the children and of mild

Hand-Mouth Coordination, **dir. Jurgen Ruesch, Gregory Bateson, and Weldon Kees, ca. 1952. Frame enlargements. Below, top to bottom: Toddler regards spoon as mother regards son; son regards camera as cameraman (Kees) films son. Opposite, top to bottom: toddler regards camera as cameraman (Kees) regards toddler; shot by Kees of Bateson filming a wider shot of the whole family. Faces have been concealed to protect the identities of the subjects. Video copy of original 16 mm film courtesy James Reidel and Henning Engelke. Reproduced with the permission of the Bateson Idea Group.**

distress for a self-conscious mother—become channels for transmitting cybernetic signals.

The gestural spacing enabled by *Hand-Mouth Coordination* dislocated the protocinematic episteme that informed late-nineteenth-century science (and lingered on in mid-twentieth-century sciences).[48] As noted by film scholar Linda Williams, among others, in the latter half of the nineteenth century, antecedents of the moving image had invested scientific knowledge of the living body with distinctly industrial properties of mechanism, minuteness, and seriality, as in the running men of Eadweard Muybridge and the hysterical women documented at Jean-Martin Charcot's Hôpital de la Salpêtrière.[49] Joined to this seriality was an objectivity born of isolating objects from their social settings and erasing all traces of the documenting instruments. Scientists enveloped the individual body in an elaborate architecture of what Noam Elcott terms "artificial darkness," by which the lively social body became a series of isolated linear transformations.[50] From the nineteenth-century culture of moving images, Bateson and his colleagues inherited a desire to isolate and expose the aberrant body in unprecedented detail. Small details of movement became durable documents for close examination. Moreover, as at the Salpêtrière, the Palo Alto films and tapes served a trinity of museological, pedagogical, and analytical purposes—that is, as an archive of aberrancy, as illustrations for instructional purposes, and as instruments of observation.[51]

However, for the spatial procedures of seriality, isolation, and enclosure that governed the late-nineteenth-century protocinematic regime, Bateson and his colleagues substituted a distinctly cybernetic logic of recursivity, interaction, and expanding networks. They turned to film and audio to delineate patterns that did not inhere in a particular body or space but disclosed themselves in circulation among multiple bodies that were tethered to recording instruments. Objective scientific authority gave way to an involvement and complicity demonstrated by the camera and its operators' appearance in the films. In Bateson and his colleagues' films, roving cameras and ordinary kitchen lights dispelled artificial darkness and traced an ontology of interrelatedness irreducible to any single body. Whereas Charcot sought to extract the mentally ill from their families and thereby build a stronger psyche in the safe confines of a clinic, affiliates of the Palo Alto Group condensed and magnified the family circuit to produce an ecological account of mental health. As one practitioner of these methods later noted,

> Family therapy will take over psychiatry in one or two decades, because it is about man in context. It is a therapy that belongs to our century, while individual therapy belongs to the nineteenth century. . . . Family therapy is to psychiatry what Pinter is to theatre and ecology is to natural science.[52]

Infrastructural Spacing

As if impelled by the centrifugal motion drawing mental illness out of the individual body into a widening gyre of associations, the documentary films of Bateson, Kees, and Ruesch quit the clinic to tour suburban living rooms and kitchens. This turn toward the suburbs participated in a wider effort to assign the nuclear family and the suburban home with the task of ordering postwar social life—what historian Ellen Herman characterizes as "an insistent [postwar] ideology of patriarchal domesticity [that] simultaneously returned civilian jobs to male veterans and sequestered women and children in a familial bubble."[53] In the course of the late 1940s and early 1950s the postwar suburb, in tandem with an expanding network of veterans' hospitals and mental health services, emerged as a mainstay in the societal infrastructures charged with overcoming the social dislocations of the Great Depression and World War II, and also acting as a dynamic buffer guarding against the kinds of brittle mentalities seen as having facilitated the rise of fascism in Europe.

From this perspective, the Palo Alto Apparatus joined an ensemble of media-technical forms and flows—including television, suburban developments, highways, and new architectural forms such as the picture window—bringing the white middle class to the suburbs. It allowed regimes of geographic spatialization, as well as economic and ethnic segregation, that served as the phantasmatic foundations of a new variety of family-centered postwar domesticity. Moreover, family therapy's emphasis on the home as the site for nurturing personality and the role of "the schizophrenogenic mother" in producing mental illness aligned it with a coterie of postwar technologies of gender that produced the home as a site of feminine care and semipublic "workplaces" as a site of masculine labor.[54]

The ethnographic tendency in the documentary films shot by Bateson and his colleagues inflects them with a certain ideological undecidability; they are at once exemplifications of the postwar ideal and self-consciously distantiated documents of its historically specific, pathological contingencies. In effect, the films—which included mothers caring for their children, parents dining with children in the kitchen, and scenes of the family receiving neighbors in the family room—offered ethnographies of the mentalities (and relative resiliencies) peculiar to the architecture and infrastructure of postwar suburban sprawl.[55] Ultimately, a specific ideological

stance on the contents of the films is ceded to a cybernetic formalism substituting spatial expanse for critical and historical depths. In this way, the early films shot by Bateson, Ruesch, and Kees took part in producing what Mark Poster describes as "a horizontal theory that illuminated the surface expanse of the patient's family life."[56] The sprawling space of the suburbs became constitutive of the horizontal surface of a new theoretical paradigm.

Three Families traces this suburban topos and its role in the medial production of racialized, gendered, and class differentiation. Consisting mostly of ethnographic documentation of families at home, it evokes the postwar fascination with the nuclear family as a basic unit of national strength and health; however, it may equally be read as a document of the role played by social science and suburban infrastructures in fabricating that family.[57] This making-of-the-family involved an ingenious incorporation of postwar California's sprawling suburban infrastructures into the emerging theoretical frameworks of family therapy. The network of highways, electrical grids, and broadcasting systems that facilitated the manufacture of a racially and economically segregated suburban utopia (i.e., the idea rather than the actuality of such a place), produced family structures suitable for description as semiautonomous and self-contained cybernetic systems.[58] Unlike the extended families identified with neighborhoods labeled "urban" and "ethnic," the suburban families of Menlo Park and Palo Alto permitted easy delineation as free-standing, semiautonomous systems. In effect, the infrastructural spacing of postwar America produced economies of psychic circulation that came to define the family as a social system. Architecture and infrastructure entered into the technological constitution of the cybernetic family.

Communication and Interaction performs this intertwining of gestural, infrastructural, psychic, and ethnic ecologies. "This film was made in San Francisco during the year of 1951," a narrator intones over opening scenes of the city center, "and deals with three West Coast middle class families whom we shall call the Hoffmans, the Peters, and the Bergs." Scenes of the city center that open the film give way to a car ride as the two cameramen, Bateson and Kees, travel via highway to a suburban enclave. Skyscrapers and urban projects give way to freestanding homes accessible by motorway and automobile. With the leaving behind of the city, the film—and indeed family therapy itself—is en route to an inventory of modes of living sustained by the suburbs. This passage from city center to suburb models the changing workplaces of Bateson and his colleagues, as their work started at San Francisco's urban Langley Porter Clinic in the late 1940s but then increasingly centered on family therapy conducted in suburban Palo Alto and Menlo Park in the 1950s. This cinematic passage also theatricalizes the migration of the postwar

American family itself, as ideals of the white suburban enclave took hold of the postwar cultural imaginary.

Three Families, like the later work of the Palo Alto Group, ambivalently recognizes the contingency of ethnic, racial, and gendered codes it documents. On the one hand, a voice-over announces that the film will concentrate on the analysis of families of "Anglo-Saxon" and "German-Jewish" descent. This detail is again in keeping with the methods of the culture-and-personality school of anthropology, which identified personality traits with national and ethnic inculcation. In *Communication: The Social Matrix of Psychiatry*, the Swiss Ruesch and the English Bateson underscored the peculiarly American qualities of the families and mentalities they described.[59] However, this historically contingent family formation and its belonging to a specific phase of the built world slides into unmarked universalism as images of a painted nativity scene of Mary, Joseph, and Jesus accompany the narration:

> The film was shot in the belief that in a careful record of what some mothers and children do, it might be possible to observe the various means of communication which the children learn through every detail of the mother's action. But the actions of parents are also responses to how they perceive the children. The family thus becomes a unit.

The result is a historicization of ethnic grouping and practices enveloped by a universalization of an ethnically unmarked, heteronormative (and Christian) nuclear family as a transhistorical building block of society.[60]

Juxtaposing the families' bathing, dressing, and playing in *Three Families* with movies Bateson and Mead shot in Bali in the 1930s brings into relief the specificity of architecture as a factor in these descriptions of the family.[61] Whereas the ethnographic films of mothers bathing their children in Bali unfold beneath the open sky and in an unenclosed space that allows acquaintances to peer in, enabling an almost seamless cutting-together of footage that features neighboring mothers and children from across the tribe, the suburban scenes of the Hoffmans, Peters, and Bergs develop in the closed space of a suburban bathroom, where only mother, children, and cameramen enter into the ecology of communication and interaction. The freestanding suburban home and its media of walls, doors, and stairwells circumscribe association, strictly regulat-

Top: *Bathing Babies in Three Cultures*, dir. Margaret Mead and Gregory Bateson, 1954. Washing a Balinese baby in the open air and in the company of neighbors. Frame enlargement. Bottom: *Communication and Interaction in Three Families*, dir. Jurgen Ruesch, Gregory Bateson, and Weldon Kees, 1952. Washing a baby in the enclosed space of the postwar American suburbs. Frame enlargement. Reproduced with the permission of the Bateson Idea Group.

ing who enters and who leaves and imposing a sharp delimitation between each family

Complementing the half hour of calm, domestic scenes that represent the so-called normal families featured in *Three Families* are hours of never-released medical footage of "abnormal" families, shot in hopes of documenting and diagnosing the production of mental illness. There the walls of the family home—presented as neutral and inoffensive in *Three Families*—are disclosed as agents in the often malignant configuration of libidinal economies. In filmed one-on-one sessions between the therapist and the mother of one Palo Alto family (who had sought treatment after seeing a public screening of *Communication and Interaction in Three Families*), the distraught woman complains of the unendurable loneliness she experiences at home, recounting the pain caused by long absences of her husband and son from the house and declaring, "I'd like to throw rocks through the window . . . [and] tear the walls down."[62] Paired with this agonizing isolation are its unsettling disruptions: she reports distressing phone calls from her husband, visits from an intrusive neighbor, and the overbearing presence of Bateson and his cameraman as incidents unsettling domesticity. Suburban Palo Alto provides a topos for the distribution of this existential dread, and the nuclear family a circuit for its articulation.

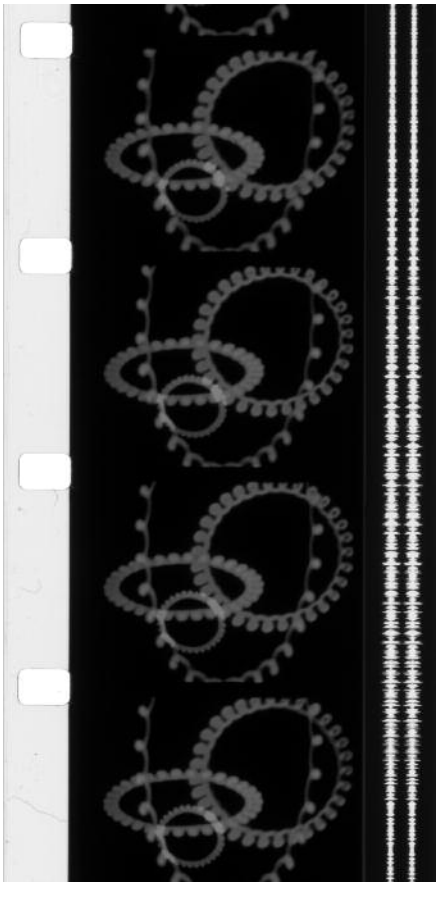
Cybernetic Aesthetics

The gestural and infrastructural spacing in the films of Bateson and his associates culminated in a cybernetic aesthetics born of the wartime instruments and techniques that circulated in postwar America. In broad strokes, the cybernetic aesthetic consisted of an amalgamation of human and machine perception in recursive and mathematically patterned series. The cybernetic aesthetic repurposed the functional patterns of mathematics as objects for aesthetic reflection in their own right. Though most easily characterized by the introduction of wartime communications technologies (such as radar, oscilloscopes, and information-theoretical methods of analysis) into artistic production, social-scientific investigation into human perception and organization arguably played the more decisive role in its constitution.

This cybernetic aesthetics emerged from a hybridization of engineering and social scientific innovation produced by the mobilization of engineers and social scientists in joint endeavors during World War II. In wartime, engineers applied cryptography, operations research, analog and digital computers, servomechanisms, and radar to the mathematical recognition of patterns that exceeded native human perceptual and cognitive faculties. Phenomena such as missile and plane trajectories and strings of words and sounds

transmitted across long distances became mathematically governed series, grids, and probabilities accessible by machine-aided intervention. Social scientists such as Kurt Lewin, Alexander Bavelas, and J.J. Gibson, meanwhile, devised psychological theories and training films capable of integrating human and machinic perception. After the war the experiments of artists and social scientists alike repurposed this knowledge for aesthetic ends.[63]

Characteristics of cybernetic aesthetics emerged in *fields of conceptual labor* and in *flows of experimental practice* opened up through the dissemination of wartime technologies in the civilian sphere. At the conceptual level, *Three Families* explicitly locates itself within the postwar technoscientific field of conceptual labors reorganizing knowledge according to cybernetics. Shots of Shannon and Warren Weaver's *The Mathematical Theory of Communication*, Wiener's *Cybernetics: Or Control and Communication in the Animal and the Machine*, and Gibson's *The Perception of the Visual World* invite the viewer into an informational ontology wherein proto-algorithmic processes govern language, industry, human-machine systems, biology, and vision.[64] These works provided analytical methods that rendered *Three Communications* intelligible as an effort to map out human interaction as communicative patterns. At the same time, the film endeavored to inscribe itself within this field—not as popularization but as a conceptual peer to take part in the interdisciplinary field of communications wherein concepts from engineering, social science, and other fields circulate. An additional shot of Bateson and Ruesch's own *Communication: The Social Matrix of Psychiatry* announces the filmmakers' intention to place mental health squarely along the axis of interdisciplinary informational sciences.



Hy Hirsh. *Divertissement Rococo*, 1951. Frame enlargements from 16 mm color film with sound, produced with an oscilloscope. Academy of Motion Picture Arts and Sciences Film Archive, Hollywood, CA. Reproduced with the permission of Angeline Pike.

The first frames of *Three Families*, which feature the phrase "Kinesis presents," provide clues to the flows of experimental practice to which the film belonged. Founded around 1951, Kinesis, Inc., distributed experimental films to festivals and college campuses. The company's distribution not only of *Three Families* but also of experimental animations such as *Divertissement Rococo* (1952) by Hy Hirsh and *Caravan* (1952) by Jordan Belson located it squarely in San Francisco's avant-garde art scene (much traveled by Bateson and Kees) that blurred the lines between scientific and artistic experiment through the repurposing of wartime technologies.[65] *Divertissement Rococo* employed an oscilloscope and optical printer of Hirsh's own construction to produce a symphony of abstract patterns and shapes

generated by mathematical ratios. Kinesis, Inc., advertised the film as "an amazing display of completely controlled colors, lines and shapes," crediting it with "translating music into light and color."[66] Belson would later incorporate Hirsh's work with the oscilloscope into his own work, most notably combining it with electronic music at the Vortex V concerts. This experimental scene rested upon the postwar proliferation of magnetic tape, oscilloscopes, and other electronics enabled by surplus and refashioned cast-off war technologies. This appropriation of wartime technologies is perhaps best known from the films of John Whitney, an artist whose 1946 appearance in the San Francisco Museum of Art's landmark Art and Cinema exhibition directly informed the film practice of Hirsh and Belson.[67] Whitney recalls making his oscilloscope-driven films by purchasing "mechanical junk excreted from army depots across the country . . . [including] antiaircraft specialized analog ballistic problem solver computers dating back to World War II."[68] As discussed by Zabet Patterson, technologies devised to render the chaos of wartime combat into orderly, predictable patterns thus became the means for an aesthetic retraining of civilian perceptual apparatuses.

In the case of *Three Families*, however, what transformed vision was not a discrete media technology like the oscilloscope, but rather a media-technical amalgamation of cybernetics, information theory, and the federally funded veterans' hospital combined within a single apparatus of therapeutic visions. At first glance, the scenes of families in *Three Families* may look quite different from the experimental films of Hirsh and Whitney. The former offers an almost quaint representation of American families at home, while the films of Hirsh and Whitney were composed entirely of abstract forms generated by the informational properties of oscilloscope and computers. However, the observational techniques of *Three Families* turned the observer away from the figural bodies of parents and children and toward abstract informational patterns of "communication" and "interaction." As the narrator of the film explains, "the film is not a record of dramatic events but of small repetitive patterns. These repeated patterns whose cumulative effect contributes to character formation are implicit statements about human relations." Thus, while the film presents what may be construed as charming domestic scenes, it is not, in fact, a depiction of mothers bathing and dressing children, nor is it even a portrayal of families; instead, it is the presentation of a particular apparatus of communication—namely, the American family—transmitting its

***Communication and Interaction in Three Families*, dir. Jurgen Ruesch, Gregory Bateson, and Weldon Kees, 1952. Frame enlargement. Example of "small repetitive patterns" to instruct viewers on what to look for in the films of families interacting at home. Reproduced with the permission of the Bateson Idea Group.**

signals via small repetitive patterns of exchange.

The cybernetic eye that transformed sentimental scenes of domestic family life into a spectacle of surface, signal, and noise laid the foundations for the informatic approach to family therapy. Bateson's cybernetic cinema bracketed out meaning and intentionality to showcase the depthless relay of technical signals. "Every expressive movement, action sequence, or word is," the narrator explains, "among other things, a message telling the receiver how to interpret other messages. It is in fact a message about communication." So it is across all the films produced by the Palo Alto Group. The metacommunicative signals of "approaches and leavetakings" (as Kees and Ruesch titled one 1955 film) replaced the existential depth of welcoming and departing. Likewise, in *Hand-Mouth Coordination*, stereotypically Freudian oral fixations of a baby and mother competing over the insertion of spoon into a mouth are transformed into an exemplary trial of cybernetic targeting based on real-time coordination of hand and eye to reach the destination.[69] This cybernetic aesthetics recomposed the nuclear family as a primary node for configuring the relay of signals and for regulating the production of the psychic self alongside its traffic with the outside world. Sustaining this analytical determination was the suburban home that configured the available channels for interaction. Scenes of neighbors approaching and leaving by side doors and of cars delivering and evacuating persons unfurl as patterns demanding informatic parsing by scientists and their cameras—at least until the arrival of anticipated computing machines capable of reducing this vast visual labor to a simple matter of zeroes and ones.

The Bastards of the Cybernetic Family

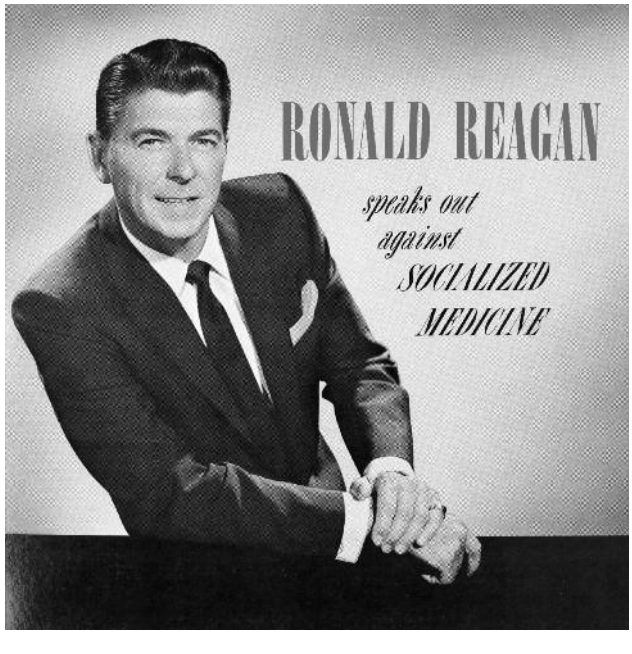
This centrifugal motion—whereby the site of communication shifts from semantic content to embedded patterns of communications—allowed family therapy as a field to divorce itself from the textual hermeneutics and inner mentalities favored by psychoanalysis and to become a formal science of observing and ultimately engineering adaptive systems of communication in the family.[70] After the 1955 suicide of Kees and the nonrenewal of a Rockefeller Foundation grant, Bateson refocused his efforts around the suburban Palo Alto Veterans Administration Hospital. Together with Jackson, Haley, Weakland, and William Fry, he developed means for making the suburban family at home in interview rooms outfitted with audio recorders, film cameras, and one-way mirrors. This collaboration adapted media techniques forged with Ruesch and Kees in the late 1940s and early 1950s into the cybernetic system of inscription, analysis, and therapeutic feedback that came to dominate family therapy and define the Palo Alto Group. By 1962 (the year Bateson

left the Palo Alto Group), the early experiment was becoming a recognized method, with efforts to reproduce their work taking root in experimental clinics across the United States.

However, even more influential than the Palo Alto Apparatus was its unanticipated offspring on the political left and right. Cybernetic therapy seemed to offer solutions to right-wing, left-wing, and technocratic agendas for mental health reform. The notion that the private nuclear family—rather than governments or society—was the proper custodian of mental health met with broad approval in Cold War America, which held up the private family as a counterforce to communist collectivism. From the right, Ronald Reagan's first major political speech, the 1961 long-playing record *Ronald Reagan Speaks Out against Socialized Medicine*, provided an ideological outline for attacks on state-funded, institutionalized health care. Reagan opposed the well-being of the family and private industry to the supposed threats posed by social security. Reagan instructed an imagined wife and mother to think of the freedoms their sons and husbands would lose if their own professions became subject to government regulation. His address found a receptive audience in California, where the work of the Palo Alto Group had already sown seeds of doubt about large state-run mental health care facilities and turned the public's attention to fathers, mothers, and the local community.

From the political left, antipsychiatrists including Thomas Szasz, David Cooper, and R.D. Laing found in the double-bind hypothesis support for their argument that mental illness constituted resistance to an oppressive society. Seizing upon the Palo Alto Group's 1950s and 1960s studies of schizophrenia as a map of group-based dysfunctions, first Laing and later French philosopher Gilles Deleuze and psychoanalyst Félix Guattari wrote conceptual elegies to the schizophrenic's ability to lay bare the paradoxes gripping capitalist society. The conceptual legacy of this work resounded in the echelons of postmodern theory, where the likes of Jean Baudrillard and Fredric Jameson embraced the critical diagnosis of schizophrenia as a register of conflict in communicative capitalism.

Often lost on the later disciples of Deleuze and Guattari was the intimate relation of this work to the media-technical refashioning of psychic management. As Guattari once recalled, "[m]y first work as a psychotherapist was with a schizophrenic, using a tape recorder," attesting to the more mundane clinical circumstances of Palo Alto–inflected therapy in which his celebrated attack



American Medical Association. *Ronald Reagan Speaks Out against Socialized Medicine*, 1961. Cover of LP record.

with Deleuze on psychoanalysis, *Anti-Oedipus*, took form.[71] Seemingly lost on the advocates of anti-Oedipal schizoanalysis themselves was their complicity with the emerging neoliberalization of health care. In an ironic alliance, these two movements laid ideological foundations in the United States for a broad-based movement to devolve health care, first from urban asylums to the community clinics of the 1960s and later to the privately run flophouses of 1970s deinstitutionalization.[72] So it was that the radical proponents of "schizo culture" and "schizoanalysis" found themselves metaphorically standing outsides the gates of empty asylums, demanding the inmates be set free.

Moreover, the proposition that modest technical adjustments could resolve long-standing mental illnesses exerted broad appeal in a nation whose demands for mental health care in the latter half of the twentieth century displayed no limits. In 1967, Bateson's former colleagues and students in Palo Alto established the Brief Therapy Center, which adapted the lessons of family therapy for the treatment of patients identified as suffering from a dearth of "time, money, intelligence, persistence, and verbal sophistication."[73] Dubbed by critics "therapy in the age of Reaganomics" and "Reagapeutics," brief therapy sought to identify and modify at the individual level observable systems of feedback identified as systemic logical distortion responsible for mental illness.[74] In lieu of the vast machinery of cameras, transcriptions, mirrors, and microphones, brief therapy returned to the simple cybernetic system of therapist, notebook, and patient. In doctrinaire form it afforded no more than ten or twelve sessions of intensive work in which to identify and adjust aberrations in communications. By taking funds formerly directed to institutionalization and psychoanalysis and earmarking them for brief therapy and its spinoffs (e.g., cognitive behavioral therapy), health maintenance organizations (HMOs) and state health care systems thereby became the principle apparatus for disseminating stripped-down cybernetics to the salaried masses.[75]

Media History as Cybernetic Kinship

The history of the cybernetic family and its media-technical fashioning extends but also complicates our understanding of the role played by media in the remaking of domestic life after World War II. For some time now it has been a pillar of cultural history that after World War II electronic media, particularly television, provided technical support for fashioning the suburban home into a semi-autonomous privatized space (what Raymond Williams termed "mobile privatization") with profound implications for the production of a "separable family."[76] Media historian Lynn Spigel demonstrates how, in the 1940s and 1950s, "white middle-class concepts of gender,

class, and generational difference" shaped the social construction of television as technology for the management of this historically specific regime of family life.[77] In this way Spigel and other feminist historians have shown how historically specific fantasies about the family bore down on the constitution of media technologies.[78]

The history of the cybernetic family reveals that the inverse is also true; that is, that historically specific fantasies about technology, and technology itself, bore down on the reconstitution of the American family. This reconstitution was not enacted by a rudimentary technological determinism whereby the arrival of electronic media in the home simply compelled new forms of private association. Instead, as the history of the cybernetic family shows, it came about indirectly, as new modes of knowledge and analysis born of wartime technologies reformed social science and other institutions for the management of postwar life. As this process of cybernetic reform unfolded, it intermingled with a wider range technical forms such as architecture, infrastructure, and educational film.

The manufacture of the cybernetic family may serve as an allegory for the task of the media historian. Insofar as the cybernetic family belongs to a chapter of media history, it suggests the latter is about more than reconstructions of specific media (e.g., radio, television, film, computing) and their interactions with, or constitution through, a predefined social context. Neither cybernetics, film, nor social construction provides a basis on its own for the production of cybernetic families. Rather, the cybernetic family came into being through the manufacture of kinships—that is, through the forging of affiliations, exchanges, and alliances that are not genetic but genealogical in character, and which are composed as much of instruments and inscriptions as by humans and their cultural practices.[79] This strategic configuration of elements—rather than a medium or a technological invention—allowed for the production of the cybernetic family as well as the forging of a new apparatus for the psychic management of its members. The history of that family suggests the proper subject of media history is not so much "media," "industries," "economy," or "social forces" as the strategic configuration of these heterogeneous elements into a self-reproducing apparatus.[80] In this sense, those living today under the sway of managed health care may find themselves to be extended members of a cybernetic family, populated with machines, data, policies, and pictures whose multifarious composition falls squarely within the mandate of the media historian.

Notes

This article is dedicated to Lynn Spigel. I presented earlier versions of this work at Stanford University and the Humboldt University of Berlin in 2015, and I thank the members of those audiences for their constructive feedback, particularly Philip Felsch and the students of his colloquium, and attendees of the Techniques of Mediation workshop at Stanford University (especially Løchlann Jain and Hans Ulrich Gumbrecht), as well as hosts Miyako Inoue, Tom Mullaney, Fred Turner, and Jennifer Hsieh. Conversations with psychiatrists George Heninger, Joel Kovel, and Alexandra Correll provided valuable insights into clinical concerns bearing on the present study. Thanks are also due to Lisa Åkervall, Paul Michael Kurtz, and the editors (and reviewers) of *Grey Room* for their incisive suggestions; conversations with Henning Engelke, Orit Halpern, Minette Hillyer, and Rob Mitchell also informed this essay. Engelke, James Reidel, and Seth Watter shared essential media artifacts from their personal archives with me. Wendel Ray, director of the Don D. Jackson Archive and of the Gregory Bateson Collection (both located at the University of Louisiana at Monroe) together with Nora Bateson and Philip Guddemi of the Bateson Idea Group, granted access to the archival materials that made possible the conception of this paper. Rebecca Ora aided with transcriptions of films held at the University of California, Santa Cruz. The Pacific Film Archive provided helpful documentation relating to Kinesis, Inc. A grant from the IKKM of Weimar, Germany, supported research, travel, and the writing of this paper.

1. On the decline of cybernetics, see Ronald R. Kline, *The Cybernetics Moment: Or Why We Term Our Age the Information Age* (Baltimore: Johns Hopkins University Press, 2015), 179–201.

2. Members of the Palo Alto Group founded the methods of brief therapy in the late 1960s. For a seminal text on its establishment, see John H. Weakland et al., "Brief Therapy: Focused Problem Resolution," *Family Process* 13, no. 2 (1974): 141–68. For indications of the links between cognitive behavioral therapy and brief therapy, see Lata K. McGinn and William C. Sanderson, "What Allows Cognitive Behavioral Therapy to Be Brief: Overview, Efficacy, and Crucial Factors Facilitating Brief Treatment," *Clinical Psychology: Science and Practice* 8, no. 1 (March 2001): 23–37. For seminal accounts of schizophrenia and postmodern capitalism, see Jean Baudrillard, "The Ecstasy of Communication," in *The Anti-aesthetic: Essays on Postmodern Culture*, ed. Hal Foster (New York: The New Press, 1983), 126–34; and Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism* (Durham, NC: Duke University Press, 1991), 1–54.

3. For a concise history of cybernetics in family therapy, see Deborah Weinstein, *The Pathological Family: Postwar America and the Rise of Family Therapy* (Ithaca, NY: Cornell University Press, 2013), 47–81. While one is hard-pressed to find oversights in Weinstein's seminal work, the present article dwells on media archaeology at some variance from that work's focus. On the influence of cybernetics, information theory, and communications theory in the Palo Alto Group more generally, see Carol Wilder, "The Palo Alto Group: Difficulties and Directions of the Interactional View for Human Communication Research," *Communication Research* 5, no. 2 (Winter 1979): 171–86.

4. The present article intervenes amid (and builds upon) a renaissance of interest in Bateson, film, and cybernetics, broadly construed. On Bateson's work as a forerunner of video therapy, see Peter Sachs Collopy, "The Revolution Will Be Videotaped: Marking a Technology of Consciousness in the Long 1960s" (Ph.D.

diss., University of Pennsylvania, 2015). On the pedagogic and civic aims of Bateson's activities in visual media, see Fred Turner, *The Democratic Surround: Multimedia and American Liberalism from World War II to the Psychedelic Sixties* (Chicago: University of Chicago Press, 2013), 39–76; and Minette Hillyer, "Camera Documents Made at Home: Visual Culture and the Question of America," *Film History* 27, no. 4 (2015): 46–75. On links between Bateson's early career in Bali and his later work (e.g., with dolphins), see Orit Halpern, "Schizophrenic Techniques: Cybernetics, the Human Sciences, and the Double Bind," *Scholar and Feminist Online* 10, no. 3 (Summer 2012).

5. The major exception to this trend are Henning Engelke's writings on Kees and his collaborators, which have inspired my own work immensely. See, for example, Henning Engelke, "Filmisches Wissen und der Geist des Kalten Krieges: Kybernetische Modelle bei Gregory Bateson und Weldon Kees," in *Wissensraum Film*, ed. Irina Gradinari, Dorit Müller, and Johannes Pause (Wiesbaden: Reichert Verlag, 2014), 225–41.

6. On the appropriation of Bateson's work by experimental artists of the 1960s and 1970s, see Eric de Bruyn, "Topological Pathways of Post-Minimalism," *Grey Room*, no. 25 (Fall 2006): 32–63; William Kaizen, "Steps to an Ecology of Communication: Radical Software, Dan Graham, and the Legacy of Gregory Bateson," *Art Journal* 67, no. 3 (2008): 86–106; Paul Ryan and Roy Skodnick, "Radical Software and the Legacy of Gregory Bateson," *Art Journal* 68, no. 1 (Spring 2009): 111–13; and Carolyn L. Kane, "The Tragedy of Radical Subjectivity: From Radical Software to Proprietary Subjects," *Leonardo* 47, no. 5 (2014): 480–87. Stewart Brand acted as the bridge between Bateson and the burgeoning cyberculture. See Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006).

7. These cultural forms are shaped by cultural techniques (*Kulturtechniken*). See Bernard Dionysius Geoghegan, "After Kittler: On the Cultural Techniques of Recent German Media Theory," *Theory, Culture and Society* 30, no. 6 (November 2013): 66–82.

8. On cybernetics and the sciences of mind, see Lily Kay, "From Logical Neurons to Poetic Embodiments of Mind: Warren S. McCulloch's Project in Neuroscience," *Science in Context* 14, no. 15 (2001): 591–614; and Andrew Pickering, *The Cybernetic Brain: Sketches of Another Future* (Chicago: University of Chicago Press, 2010).

9. Norbert Wiener, "Cybernetics," *Scientific American* 179 (1948): 14, 17.

10. Claude E. Shannon, "Brains, Minds, Machines" [unpublished manuscript], in box 13, folder 3, Claude E. Shannon Papers, U.S. Library of Congress. This manuscript is also known as "Brains and Machines."

11. John von Neumann, *The Computer and the Brain* (New Haven, CT: Yale University Press, 2000).

12. On cybernetics in the work of Miller and the field of cognitive psychology, see Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge: MIT Press, 1996), 209–38. On Lacan and cybernetics, see Ronan Le Roux, "Psychanalyse et cybernétique: Les machines de Lacan," *L'évolution psychiatrique* 72 (2007): 346–69.

13. On the widespread transfer of wartime technologies to the civilian sector, especially after World War II, see Jennifer S. Light, *From Warfare to Welfare: Defense Intellectuals and Urban Problems in Cold War America* (Baltimore: Johns Hopkins University Press, 2003). For a classic media-theoretical account of this transfer, see Friedrich A. Kittler, "Rock Music: A Misuse of Military Equipment," in

The Truth of the Technological World: Essays on the Genealogy of Presence, trans. Erik Butler (Stanford, CA: Stanford University Press, 2013), 152–64.

14. Ellen Herman, *The Romance of American Psychology: Political Culture in the Age of Experts* (Berkeley and Los Angeles: University of California Press, 1995), 242–43.

15. See Marvin Karno and Donald A. Schwartz, *Community Mental Health: Reflections and Explorations* (Flushing, NY: Spectrum Publications, 1974), 22–23; and Joseph Halpern, *The Myths of Deinstitutionalization: Policies for the Mentally Disabled* (Boulder, CO: Westview Press, 1980), 1–5.

16. See Albert Maisel, "Bedlam 1946," *LIFE* 20, no. 18 (6 May 1946): 102–18; and Albert Deutsch, *The Shame of the States* (New York: Harcourt, Brace, 1948).

17. For example, Alfred H. Stanton and Morris S. Schwartz, *The Mental Hospital: A Study of Institutional Participation in Psychiatric Illness and Treatment* (New York: Basic Books, 1954); and Erving Goffman, *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates* (Garden City: Anchor Books, 1961).

18. E. Fuller Torrey, *American Psychosis: How the Federal Government Destroyed the Mental Illness Treatment System* (New York: Oxford University Press, 2014), 75.

19. The landmark account of the transition from disciplinary containment to informational control is James Beniger, *The Control Revolution: Technological and Economic Origins of the Information Society* (Cambridge, MA: Harvard University Press, 1986). A synoptic outline of this transition may be found in Gilles Deleuze, "Postscript on the Societies of Control," *October* 59 (Winter 1992): 3–7.

20. Gregory Bateson et al., "Toward a Theory of Schizophrenia," *Behavioral Science* 1, no. 4 (1956): 251–64.

21. Jay Haley, "Development of a Theory: A History of a Research Project," in *Double Bind: The Foundation of the Communicational Approach to the Family*, ed. Carlos E. Sluski and Donald C. Ransom (New York: Grune & Stratton, 1976), 69.

22. Don D. Jackson, "The Study of the Family," *Family Process* 4 (1965).

23. On the definition of a *dispositif*, see Michel Foucault, "The Confession of the Flesh," in *Power/Knowledge: Selected Interviews and Other Writings*, ed. Colin Gordon (New York: Pantheon Books, 1980), 194–96. On cybernetics as an apparatus, see Bernard Dionysius Geoghegan, "From Information Theory to French Theory: Jakobson, Lévi-Strauss, and the Cybernetic Apparatus," *Critical Inquiry* 38, no. 1 (2011): 96–126.

24. See Bernard Dionysius Geoghegan, "The Cybernetic Apparatus: Media, Liberalism, and the Reform of the Human Sciences" (Ph.D. diss., Northwestern University, Evanston, Illinois, 2012).

25. Geoghegan, "The Cybernetic Apparatus," 69–70.

26. Although initially devised for interviewing families with a schizophrenic member (Weinstein, 67–68), it was later adapted to a therapeutic tool for general use. For an account of the latter, see Paul Watzlawick, "A Structured Family Interview," *Family Process* 5, no. 2 (September 1966). The phrase "scanning for patterns" comes from Watzlawick's article.

27. Although I am surmising the presence of the fireplace based on my examination of films, I have not been able to confirm this detail with participants.

28. All examples in this paragraph are drawn from Watzlawick, "A Structured Family Interview."

29. Watzlawick, "A Structured Family Interview."

30. Watzlawick, "A Structured Family Interview."

31. Don D. Jackson, "The Eternal Triangle: An Interview with Don D. Jackson,

M.D.," in *Techniques of Family Therapy*, ed. Jay Haley and L. Hoffman (New York: Basic Books, 1967), 175–76. Other details related in this paragraph are drawn from Jay Haley, "Family Experiments: A New Type of Experimentation," *Family Process* 1 (1962).

32. Haley, "Family Experiments."

33. Scenes of this performance may be found in Samuel Moffat, "Area Psychiatrists Study New Schizophrenia Theory," *Palo Alto Times*, 7 May 1958, 2nd sec.; and in the Eastern Pennsylvania Psychiatric Institute (EPPI) films in the Bateson Collection at the Don D. Jackson Archive, University of Louisiana at Monroe (hereinafter "Jackson Archive").

34. Accounts of the Ruesch, Kees, and Bateson films appear in a diverse array of books. The closest thing to a comprehensive account of their work can be found (interspersed with other information) in James Reidel, *Vanished Act: The Life and Art of Weldon Kees* (Lincoln: University of Nebraska Press, 2003), 239–348. Unless otherwise noted, I have drawn my accounts of their work together from Reidel's text.

35. See Gregory Bateson and Margaret Mead, *Balinese Character: A Photographic Analysis* (New York: New York Academy of Sciences, 1962); and Gerald Sullivan, *Margaret Mead, Gregory Bateson, and Highland Bali* (Chicago: University of Chicago Press, 1999), 5.

36. Jurgen Ruesch, "Values, Communication, and Culture: An Introduction," in *Communication: The Social Matrix of Psychiatry* (New York: W.W. Norton, 1951), 6.

37. Weldon Kees, *The Collected Poems of Weldon Kees*, ed. Donald Justice (Lincoln: University of Nebraska Press, 1975), 130.

38. This thrust is particularly clear in the visually stunning monograph *Nonverbal Communication*, coauthored by Kees and Ruesch but largely photographed by the former. See Jurgen Ruesch and Weldon Kees, *Nonverbal Communication* (Berkeley and Los Angeles: University of California Press, 1956).

39. *Communication and Interaction in Three Families*, dir. Jurgen Ruesch, Gregory Bateson, and Weldon Kees (Kinesis, Inc.: 1952), 16 mm sound film, approx. 75 min.

40. At least one history of the Palo Alto Group, written by member Jay Haley in 1961 (but not published until 1976), lists the films prepared by Bateson, Kees, and Ruesch as the primary data gathered in the first year of the project. Haley writes, "The data that first year were diverse and included the following: a study of otters playing, a study of training of guide dogs for the blind, an analysis of a popular moving picture, a filming of Mongoloid children in a group, analysis of humor and a ventriloquist and puppet, and the utterance of a schizophrenic patient when a project member began to interview him early that year." See Haley, "Development of a Theory: A History of a Research Project," 62. Uncut footage of the otters and dog training films may be found in the Bateson holdings in the Jackson Archive. The films of "Mongoloid" children and of the ventriloquist appear to be lost. Uncut footage of a patient/subject known as Doris at home and ethnographic films of other families are also in the Jackson Archive. Additional films, tape recordings, and transcripts of Bateson and his colleagues (sometimes in dialogue with patients or with one another and in at least one instance appearing on broadcast television), as well as footage from other settings and featuring other persons, including psychoanalyst John Rosen working with patients, are held in the Jackson Archive. The canonical film of Doris, *GB-SU-005* (discussed at length by Seth Watter in this issue of *Grey Room*), may be found at the University of Chicago Digital Media Archive. Additional (and perhaps alternate) copies may be located in the Human Studies Film Archives at the Smithsonian. Final versions of *Communication and Interaction*

in Three Families and *The Nature of Play: Part 1, River Otters* may be found in the Bateson archives at the University of California, Santa Cruz. I received a copy of *Hand-Mouth Coordination* from James Reidel (via Henning Engelke) as well as a copy of *Approaches and Leavetakings* by Ruesch and Kees. A brief (perhaps incomplete) listing of the films completed by Bateson, Ruesch, and Kees appears in Ruesch and Kees, 200.

41. Gregory Bateson, *Steps to an Ecology of Mind* (New York: Ballantine Books, 1972), x, 179. See also Bernard Dionysius Geoghegan, "Editor's Introduction: What Bound the Double Bind?" and Gregory Bateson and Weldon Kees, "*The Nature of Play: Part 1, River Otters*," in this issue of *Grey Room*.

42. Ruesch and Kees, 11–12.

43. See Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility [First Version]," trans. Michael W. Jennings, *Grey Room*, no. 39 (Spring 2010): 30; and discussion thereof in Miriam Hansen, "Benjamin and Cinema: Not a One-Way Street," *Critical Inquiry* 25, no. 2 (Winter 1999): 313–19. Note that Hansen refers to the versions of this essay composed in 1935 and 1936. The *Grey Room* text translates the 1935 version.

44. Stewart Brand and Gregory Bateson, *II Cybernetic Frontiers* (New York: Random House, 1974), 29.

45. *Hand-Mouth Coordination*, dir. Gregory Bateson and Weldon Kees, 1951, 16 mm, black-and-white, approx. 10 min., in personal collection of James Reidel, with assistance from Henning Engelke.

46. Reidel, 240.

47. This reflexive turn, which is cybernetic in character, anticipates the rise of video therapy (and video art) and its mechanisms of feedback. See Collopy, "The Revolution Will Be Videotaped." This also reflects a broader trend of film from the period to draw the psychiatrist into the scene of illness, as if by way of implication. See W.J.T. Mitchell, *Seeing Madness, Insanity, Media, and Visual Culture* (Berlin: Hatje Cantz Verlag, 2012).

48. In this instance the term *protocinematic* does not indicate a primitive form of moving-image culture that realizes itself in cinema; rather, it refers to a nonteleological path in the refinement of knowledge of life by the moving image that is recounted in Linda Williams, *Hard Core: Power, Pleasure and the "Frenzy of the Visible"* (Berkeley and Los Angeles: University of California Press, 1989).

49. Williams, 34–57. On hysterics at the Hôpital de la Salpêtrière, see also Georges Didi-Huberman, *Invention of Hysteria: Charcot and the Photographic Iconography of the Salpêtrière* (Cambridge: MIT Press, 2003), 83–279. On Marey, see Noam M. Elcott, *Artificial Darkness: An Obscure History of Modern Art and Media* (Chicago: University of Chicago Press, 2016), 17–46.

50. Elcott, *Artificial Darkness*.

51. Didi-Huberman, 30.

52. Salvador Minuchin, quoted in Janet Malcolm, "The One-Way Mirror," *New Yorker*, 15 May 1978, 83.

53. Herman, 240.

54. In the course of the 1960s this gendering of family therapy became less marked, as double binding came to be understood as a reciprocal process of mutual binding between two or more actors rather than a unilateral process imposed by one individual on another, such as mother and child.

55. On the intertwining of infrastructures, media, and the mentalities characteristic of suburbanization, see Margaret Morse, *Virtualities: Television, Media Art, and*

Cyberculture (Bloomington: Indiana University Press, 1998), 99–124.

56. Mark Poster, *Critical Theory of the Family* (New York: Seabury Press, 1988), 112.

57. On the role of psychotherapy in producing new kinds of families in postwar America and the Palo Alto Group specifically, see Weinstein, *The Pathological Family*.

58. On this ideal of the suburb and its medial facilitation, see Lynn Spigel, "The Suburban Home Companion: Television and the Neighborhood Ideal in Postwar America," in *Sexuality and Space*, ed. Beatriz Colomina (Princeton, NJ: Princeton Architectural Press, 1992), 185–217.

59. See, for example, Jurgen Ruesch, "Communication and American Values: A Psychological Approach," in *Communication*, 94–134.

60. In the course of the 1950s, members of the Palo Alto Group came to encode this universalism in abstract formal descriptions and diagrams that characterize libidinal economies of "the family."

61. For an overview of scenes shot in Bali and the United States, see Margaret Mead and Gregory Bateson, *Bathing Babies in Three Cultures* (1951; Pennsylvania State University Audio-Visual Services, DVD, 2008). On the broader medial context and political stakes of these investigations, see Turner, *The Democratic Surround*, 39–76.

62. Partial transcript and notes available as Kantor [Jacob Robert Kantor?], Henry Brosin et al., "Film" [transcription with session notes], 28 July 1956, in box 18, Ray L. Birdwhistell Papers, Folklore Archives, Penn Museum, Philadelphia. Film of the therapy session is available as "Reels 1–4," *Bateson EPPI Films* [DVD], in Jackson Archive.

63. See, for example, the comments on recording, the fruits of wartime advances in research and technology, and family analysis in Kurt Lewin, "Frontiers in Group Dynamics: Concept, Method and Reality in Social Science; Social Equilibria and Social Change," *Human Relations* 1, no. 1 (June 1947): 5–41. Bateson knew Lewin personally, and his work was cited by members of the Palo Alto Group. Bavelas partnered with the Palo Alto Group in the design of the alliance-building experimental apparatus. Gibbons, who directed the Motion Picture Research Unit in the Aviation Psychology Program, is cited in *Communication and Interaction in Three Families*.

64. See Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication* (Urbana: University of Illinois Press, 1949); Norbert Wiener, *Cybernetics: Or Control and Communication in the Animal and the Machine* (Cambridge, MA: MIT Press, 1948); and J.J. Gibson, *The Perception of the Visual World* (Boston: Houghton Mifflin, 1950).

65. Zabet Patterson, "From the Gun Controller to the Mandala: The Cybernetic Cinema of John and James Whitney," *Grey Room*, no. 36 (Summer 2009): 36–57. On the place of Bateson and Kees (and their films) in the San Francisco art scene, see Henning Engelke, *The Art That Never Was: Experimentalfilm in den USA, 1940–1960* (Marburg: Schüren Verlag, 2017), esp. ch. 7.

66. Quotation excerpted from a flyer reprinted in Steve Anker, Kathy Geritz, and Steve Seid, eds., *Radical Light: Alternative Film and Video in the San Francisco Bay Area, 1945–2000* (Berkeley and Los Angeles: University of California Press, 2010), 87.

67. Tom Sito, *Moving Innovation: A History of Computer Animation* (Cambridge: MIT Press, 2013), 19–21.

68. Patterson, 37.

69. For the work on "approaches and leavetakings," see the film by Ruesch and Kees, *Approaches and Leavetakings* (Langley Porter Clinic, 1955); and the brief

photo series in Ruesch and Kees, 84. On hand-mouth coordination, see the film by Bateson and Kees, *Hand-Mouth Coordination*, and the brief comments in Ruesch and Kees, 16. Compare, for example, Bateson's fixation of oral and anal themes in the film in Bateson, "Cultural and Thematic Analysis of Fictional Films," *Transactions of the New York Academy of Sciences* 5 (1943): 72–78, with the cybernetic and informatic narrations of his 1950s films and writings. The earliest example of a cybernetic problem discussed in the scientific literature by Wiener was the delivery of water to the mouth (which in the published literature stood in as a substitute for their classified work on the anti-artillery gunners' aiming at targets). See Arturo Rosenblueth, Norbert Wiener, and Julian Bigelow, "Behavior, Purpose, Teleology," *Philosophy of Science* 1 (January 1943): 20–21.

70. This movement arguably culminates in the rise of video therapy and certain styles of video art. See Collopy, "The Revolution Will Be Videotaped."

71. Catherine Backès-Clément, Gilles Deleuze, and Félix Guattari, "Gilles Deleuze and Félix Guattari on Anti-Oedipus," in *Negotiations, 1972–1990* (New York: Columbia University Press, 1995), 15. For a penetrating outline of the alliance between antipsychiatry and neoliberalism, see Peter Sedgwick, *PsychoPolitics* (London: Pluto Press, 1982).

72. For the broad outlines of this shift (including notes on how progressive aims became elements in reactionary economic policies), see Torrey, 177–311.

73. Weakland et al., 141–68.

74. Daniel Goleman, "Deadlines for Change: Therapy in the Age of Reaganomics," *Psychology Today*, August 1981, 60–69; and Paul R. Good, "Brief Therapy in the Age of Reagapeutics," *American Journal of Orthopsychiatry* 57, no. 1 (January 1987): 6–11.

75. On the role of the Palo Alto Group in founding and disseminating brief therapy (as well as the important contributions by other psychotherapists such as Milton Erickson), see Coert F. Visser, "The Origin of the Solution-Focused Approach," *International Journal of Solution-Focused Practices* 1, no. 1 (2013): 10–17. On the economizing measures of managed health care as an engine for the growth of brief therapy, see Steven Stern, "Managed Care, Brief Therapy, and Therapeutic Integrity," *Psychotherapy: Theory, Research, Practice, Training* 30, no. 1 (1993): 162–75; and David A. Shapiro et al., "Time Is of the Essence: A Selective Review of the Fall and Rise of Brief Therapy Research," *Psychology and Psychotherapy: Theory, Research and Practice* 76 (2003): 211–16. Shapiro et al. privilege an alternate genealogy of brief therapy that extends from Franz Alexander and Thomas Morton French to David H. Malan and Peter Sifneos.

76. See Raymond Williams, *Television: Technology and Cultural Form* (New York: Routledge, 2003), 20–21. In these pages Williams notes the late-nineteenth-century and interwar origins of this cultural model.

77. Lynn Spigel, *Make Room for TV: Television and the Family Ideal in Postwar America* (Chicago: University of Chicago Press, 1992), 186.

78. See, for example, Ruth Schwartz Cowan, *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* (New York: Basic Books, 1983); Margaret Morse, "An Ontology of Everyday Distraction: The Freeway, the Mall and Television," in *Logics of Television: Essays in Cultural Criticism*, ed. Patricia Mellencamp (Bloomington: Indiana University Press, 1990), 193–221; Mimi White, *Tele-advising: Therapeutic Discourse in American Television* (Chapel Hill: University of North Carolina Press, 1992); and Beatriz Colomina, *Domesticity at War* (Cambridge: MIT Press, 2007).

79. Donna Haraway has mapped the prospects of such a kinship—its necessity and impossibility, its implication in the gendered and racialized technologies of oppression, and the fantastic possibility of transvaluing (if not quite transcending) its limits—throughout her work. See, for example, Donna Haraway, "Cyborgs to Companion Species: Reconfiguring Kinship in Technoscience," in *The Haraway Reader* (New York: Routledge, 2004), 295–320.

80. As Francesco Casetti writes of media-technological change, "what counts is not so much its material conditions as its configuration." Francesco Casetti, *The Lumière Galaxy: Seven Key Words for the Cinema to Come* (New York: Columbia University Press, 2015), 31. Understanding these configurations in terms of self-reproducing systems entails a superimposition of this thesis onto a theory of media systems as recursive systems of production such as that proposed by Bernhard Siegert in *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (New York: Fordham University Press, 2015).